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REMARKS

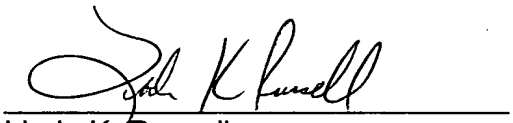
In complete response to the outstanding office action, on the above-identified application, reconsideration is respectfully requested.

Applicant wishes to thank the Examiner for his Response to Amendment and his suggestions. The claims have been revised accordingly. Applicant sincerely appreciates this opportunity to resubmit these amendments.

It is believed that the present application now stands in condition for allowance. Early notice to this effect is earnestly solicited.

Should the Examiner believe that a telephone call would expedite prosecution of the application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231, on this **21st** day of **November, 2002**.

Stacy Forte

CLAIMS AS AMENDED

15. (Amended) A method to increase [the] throughput of a recovery boiler applicable to boilers with at least three air injection levels, the three levels being primary, secondary and tertiary air injection levels, or boilers that originally had two air injection levels that have been retrofitted with a third air injection level [with two air injection levels is retrofitted to three levels], the method comprising injecting oxygen at least at the secondary and the tertiary air injection levels, wherein the ratio of total oxygen to total combustion air at any air injection level is the oxygen enrichment concentration for that air injection level.

16. (Amended) Method in accordance with claim 15 wherein oxygen enrichment concentration is applied to the primary air injection level [stream] in addition to the secondary and tertiary air injection levels [streams].

17. (Amended) Method in accordance with claim 15 wherein recovery boiler has the same oxygen enrichment [level] concentration in the secondary and tertiary air injection levels, the oxygen enrichment [levels] concentrations being greater than 21%.

18. (Amended) Method in accordance with claim 15 wherein the recovery boiler has different oxygen enrichment concentrations [levels] in each air injection level, the [concentration of oxygen] oxygen enrichment concentrations being greater than 21% in each air injection level.

19. (Amended) A method of increasing [the] throughput of a recovery boiler applicable to boilers with at least four air injection levels, the four levels being

primary, secondary, third and fourth air injection levels, the method comprising applying oxygen enrichment to [at least] the secondary air injection level and one or more of third and fourth air injection levels, wherein the ratio of total oxygen to total combustion air at any air injection level is the oxygen enrichment concentration for that air injection level.

20. Method in accordance with claim 19 wherein oxygen is injected at [enrichment is applied to] the primary air injection level in addition to the secondary and fourth air injection levels.

21. Method in accordance with claim 19 wherein the recovery boiler has the same oxygen enrichment [levels] concentrations in the primary, secondary and tertiary air injection levels, the oxygen enrichment [levels] concentrations being greater than 21%.

22. (Amended) Method in accordance with claim 19 wherein the recovery boiler has different oxygen enrichment [levels] concentrations in each air injection level, the [concentration of oxygen] oxygen enrichment concentrations being greater than 21% in each air injection level.

23. (Amended) Method in accordance with claim 19 wherein the recovery boiler has oxygen [concentrations in combustion oxidant] enrichment concentrations up to 30% in the primary, secondary, and tertiary air injection levels [of combustion air].

24. (Amended) Method in accordance with claim 19 wherein the recovery boiler has oxygen [concentrations in combustion oxidant] enrichment concentrations up to

30% in the primary, secondary, and third and fourth air injection levels [of combustion air].

25. (Amended) A method of controlling [the] oxygen concentration in [the] flue gas of a recovery boiler [when oxygen enrichment of the combustion air is applied], the method being applicable to boilers with at least three levels of air injection, or a recovery boiler with an original two level air injection system retrofitted to three air injection levels [as described above, said] the method including the steps of:

a) supplying oxygen flows to at least two [combustion] air injection levels of the recovery boiler, [said] the two [combustion] air injection levels being different from the primary air injection level, for oxygen enrichment of the [said] two [combustion] air injection levels;

b) selecting a [desired oxygen concentration in the flue gas called] set point oxygen concentration

c) sensing the oxygen concentration in the flue gas;

d) adjusting the oxygen flow injected in the tertiary [combustion] air injection level, in order to maintain the sensed oxygen concentration at about the set point oxygen concentration, while maintaining the flow of oxygen in the secondary air injection level [combustion air] constant.

26. (Amended) A method of controlling [the] oxygen concentration in [the] flue gas of a recovery boiler [when oxygen enrichment of the combustion air is applied], the method being applicable to boilers with at least four levels of air injection, the method comprising the steps of:

a) supplying oxygen flows to at least two [combustion] air injection levels of the recovery boiler, [said] the two [combustion] air injection levels being different from the primary air injection level, for oxygen enrichment of the [said] two [combustion] air injection levels;

b) selecting a desired [oxygen concentration in the combustion products called] set point oxygen concentration;

c) sensing the oxygen concentration in the flue gas;

d) adjusting the oxygen flow injected in the upper most [combustion] air injection level, in order to maintain the sensed oxygen concentration at about the set point oxygen concentration, while maintaining the flow of oxygen in the other air injection level [of combustion air] constant.

27. (Amended) A method to improve [the] combustion stability [or chemical recovery] of a recovery boiler [where oxygen enrichment is applied to at least one injection level of the combustion air system at the primary air injection level] comprising the steps of:

a) supplying oxygen flows to the primary air injection level of the recovery boiler for oxygen enrichment of the primary air;

b) sensing [either one or all of the following quantities: reduction efficiency of the smelt,] the sulfur dioxide [SO_2] concentration in flue gas [, or bed temperature];

c) adjusting the oxygen flow injected in the primary [combustion] air injection level [,] in order to [obtain at least one of the following effects on either or all

of the following quantities: reduction efficiency above 90% and] minimize [SO_2] sulfur dioxide emissions.

28. (Amended) A method to improve [the] combustion stability [or chemical recovery] of a recovery boiler [where oxygen enrichment is applied to at least one level of the combustion air system at the secondary air level] comprising the steps of:

a) sensing [either one or all of the following quantities: the reduction efficiency of the smelt,] the sulfur dioxide [SO_2] concentration in the flue gas [, or the bed temperature];

b) adjusting the oxygen flow injected in the secondary [combustion] air injection level, in order to [obtain the following effects on either or all of the following quantities: keep the reduction efficiency above 90%,] minimize the [SO_2] sulfur dioxide emissions.

29. (Amended) Method in accordance with claim 28 wherein the oxygen enrichment concentration in [the oxidant in] each air injection level [of oxygen enriched air injection] is controlled independently.

30. (Amended) A method of controlling temperature profile in a recovery boiler [when oxygen enrichment of the combustion air is applied], [said] the method including the steps of:

a) supplying oxygen flows to at least two [combustion] air injection levels of the recovery boiler, [said] the two [combustion] air injection levels being different from the primary air injection level, for oxygen enrichment of the [said] the two [combustion] air injection levels;

b) selecting [an optimal temperature profile for the boiler based on the prior knowledge of the boiler operation, called] a set point temperature profile;

c) sensing average temperatures at different levels of the boiler with an optical technique, and inferring a temperature profile to the boiler, adjusting the oxygen flow injected in [said] the at least two [combustion] air injection levels so that the measured temperature profile matches the boiler set point temperature profile.

31. (New) A method to improve the chemical recovery of a recovery boiler comprising the steps of:

a) supplying oxygen flows to the primary air injection level of the recovery boiler for oxygen enrichment of the primary air;

b) sensing the reduction efficiency of the smelt;

c) adjusting the oxygen flow injected in the primary air injection level, in order to obtain a reduction efficiency above 90%.

32. (New) A method to improve the chemical recovery of a recovery boiler comprising the steps of:

a) sensing the reduction efficiency of the smelt ;

b) adjusting the oxygen flow injected in the secondary air injection level, in order to obtain a reduction efficiency above 90%, wherein the ratio of total oxygen to total combustion air at any air injection level is the oxygen enrichment concentration for that air injection level.

33. (New) Method in accordance with claim 32 wherein the oxygen enrichment concentration in the oxidant in each air injection level of oxygen enriched air injection is controlled independently.